REMARKS

Claims 32-38 are pending in this application. All previous claims are cancelled herein and new claims 32-38 are presented for examination.

Canceled claims 29-31 were rejected under 35 U.S.C. 112, second paragraph as being indefinite based on applicant's phrasing of the " for an application of an anticorrosive coating" juxtaposed with "activating". New independent claims 32 and 35 more clearly recite these limitations.

With regards to the provisional non-statutory obviousness-type double patenting rejection in view of co-pending Application No. 10/525,026, Applicant acknowledges the obligation under 37 CFR 1.56 to point out an inventor and invention date of each claim that was not commonly owned at a time a later invention was made and that a timely filed terminal disclaimer may be used to overcome a non-statutory double patenting rejection of a commonly owned or joint research invention.

Canceled claims 29-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tornbolm (US 4,853,634) in view of Valleau et al. (US 5,028,100) and in further view of M..J. Woulds or Culling (US 5,310,522), plus Burns et al. (US 6,042,898), optionally with Collins et al. (US 4,555,612).

New independent claim 32 is directed to a method for manufacture of a main body made of a nickel- or cobalt-based superalloy parent material comprising: determining an area of corrosion on the main body by an eddy-current measurement using at least two different measuring frequencies to ascertain the thickness of the corroded areas, wherein the at least two different measuring frequencies include a low frequency used first and a high frequency used subsequently, wherein the depth of the area of corrosion (δ) determined using eddy-current testing is determined in relation to the measuring frequency (f), wherein the area of corrosion is oxidated carbide corrosion or sulfidized corrosion; removing the corrosion area by cleaning the main body using a first cleaning process and a second cleaning process different from the first cleaning process, wherein the first cleaning process is a grinding process and the second cleaning process is a sputter process; activating the surface of the main body for an application of an anti-corrosive coating; and applying the anti-corrosive coating. Support for this claim is found in the specification at page 2, lines 20-31 and page 5, lines 28-31.

New dependent claims 33-35 are further directed to a method for manufacture of a main body made of a nickel- or cobalt-based superalloy parent material comprising: determining an area of corrosion on the main body by an eddy-current measurement using at least two different measuring frequencies to ascertain the thickness of the corroded areas, wherein the at least two different measuring frequencies include a low frequency used first and a high frequency used subsequently, wherein the depth of the area of corrosion (δ) determined using eddy-current testing is correlated to the measuring frequency (f) by the equation $\delta = 503/(\sqrt{(f \cdot \sigma \cdot \mu_r)}$, where σ is the specific conductivity of the parent material and μ_r is the relative permeability of the parent material, wherein the area of corrosion is oxidated carbide corrosion or sulfidized corrosion; and removing the corrosion area by cleaning the main body using a first cleaning process and a second cleaning process different from the first cleaning process, wherein the first cleaning process is a grinding process and the second cleaning process is a sputter process. Support for this claim is found in the specification at page 2, lines 20-31 and page 5, lines 28-31.

New independent claim 36 is directed to method for the manufacture of a gas turbine blade with a cast main body of a nickel or cobalt based superalloy parent material, comprising: testing a surface of the main body for the presence of a corrosion area of oxidated carbides or sulfidized parent material areas using eddy-current testing, wherein the depth of the area of corrosion (δ) determined using eddy-current testing is determined in relation to the measuring frequency (f), removing oxide areas of oxidated carbides or sulfidized areas by cleaning the surface of the main body using a first cleaning process effective to remove the oxidated carbides or sulfidized parent material areas; performing a second cleaning process different than the first cleaning process, the second cleaning process being ineffective for removing the corrosion area in the absence of the first cleaning process; activating the surface of the main body for an application of an anti-corrosive coating; and applying an anti-corrosive coating. Support for this claim is found in the specification at page 2, lines 20-31 and page 5, lines 28-31.

New dependent claims 37-38 are further directed a method for the manufacture of a gas turbine blade with a cast main body of a nickel or cobalt based superalloy parent material, comprising: testing a surface of the main body for the presence of a corrosion area of oxidated carbides or sulfidized parent material areas using eddy-current testing; wherein the depth of the area of corrosion (δ) determined using eddy-current testing is correlated to the measuring frequency (f) by the equation $\delta = 503/(\sqrt{(f \cdot \sigma \cdot \mu_r)}$, where σ is the specific conductivity and μ_r is

the relative permeability of the parent material, removing oxide areas of oxidated carbides or sulfidized areas by cleaning the surface of the main body using a first cleaning process effective to remove the oxidated carbides or sulfidized parent material areas; performing a second cleaning process different than the first cleaning process, the second cleaning process being ineffective for removing the corrosion area in the absence of the first cleaning process; and activating the surface of the main body for an application of an anti-corrosive coating; applying an anti-corrosive coating. Support for this claim is found in the specification at page 2, lines 20-31 and page 5, lines 28-31.

The present inventors have recognized that a defined transition or change occurs in the magnetic response of the parent material via the conductivity and/or permeability of nickel or cobalt based alloy parent material as well as inhomogenieties (corrosion) in the parent material as a function of the excitation frequency applied during eddy current testing because of primary and secondary electromagnetic fields which occur during the eddy current testing. Further, the inventors note that frequency has an essential influence on the depth of penetration of the eddy current.

As a result, by applying the equation $\delta = 503/(\sqrt{(f \cdot \sigma \cdot \mu_r)}$, a specific depth of penetration (δ) of inhomogenieties (corrosion) in the parent material can be determined at an applied frequency (f) using the specific conductivity (σ) and relative permeability (μ_r) of the parent alloy material. The prior art does not teach or suggest applying the specified equation to determine a specific depth of penetration of the corrosion.

New dependent claim 34 adds the further limitation of providing the results of the eddy-current measurement to an evaluation unit. Support for this claim is found at page 9, lines 25-26.

New dependent claim 35 adds the further limitation wherein the main body is a gas turbine component. Support for this claim is found at page 1, line 9.

New dependent claim 38 adds the further limitation more clearly identifying an anti-corrosive coating. Support for this claim is found at page 7, lines 6-10.

Conclusion:

Applicants respectfully request allowance of the present application in view of the foregoing amendments and arguments. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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